

Name: Answer Key

Class: _____

Chapter Quiz: Arithmetic on decimals, fractions and percentages

A. Simple problems

The suggested time allocated for Question 1 to 4 is 10 minutes.

1. Calculate the following:

$$\begin{aligned} & \frac{1}{12} - \frac{2}{12} + \frac{3}{12} \\ &= \frac{1+3-2}{12} \\ &= \frac{2}{12} = \frac{1}{6} \end{aligned}$$

2. Write the following as fractions in their simplest form:

a. 0.479 $= \frac{479}{1000}$	b. 3.4 $= 3\frac{4}{10}$ $= 3\frac{2}{5}$
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3. Convert the following fractions to decimals:

a. $\frac{293}{1000}$ $= 0.293$	b. $8\frac{2}{5}$ $= 8\frac{4}{10}$ $= 8.4$
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4. Convert the following numbers into percentages:

a. 0.52 $= 0.52 \times 100\%$ $= 52\%$	b. $67\frac{5}{8}$ $= 67.625 \times 100\%$ $= 6762.5\%$
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B. More complex problems

The suggested time allocated for Question 5 to 7 is 10 minutes.

Calculate question 4 and 5 and show your working clearly (including column form):

5.

a.

$$\begin{array}{r}
 \begin{array}{ccc}
 & 3.6 & \rightarrow 1dp \\
 \times & 1.7 & \rightarrow 1dp \\
 \hline
 & 360 & \\
 & 252 & \\
 \hline
 & 6.12 & \rightarrow 2dp
 \end{array}
 \end{array}$$

b.

$$\begin{aligned}
 & \frac{2}{7} \div \frac{3}{7} \\
 & = \frac{2}{7} \times \frac{7}{3} \\
 & = \frac{2}{3}
 \end{aligned}$$

6. Convert $\frac{2}{3}$ into a recurring decimal.

$$\begin{aligned}
 & \frac{2}{3} \\
 & = 0.\dot{6}
 \end{aligned}$$

Calculation

$$\begin{array}{r}
 0.66\dots \\
 3 \overline{) 2} \\
 \underline{18} \\
 20 \\
 \underline{18} \\
 2\dots
 \end{array}$$

7. Arrange the following in ascending order (from smallest to largest). Show your workings clearly.

0.63	$\frac{61}{1000}$	630%	0.5	$\frac{62}{100} = \frac{62}{100}$
	$61 \div 1000$	$630 \div 100$		
0.63	= 0.061	= 6.3	0.5	= 0.62

~~$$\frac{61}{1000} < \frac{62}{100} < 0.63 < 0.5 < \dots$$~~

$$\frac{61}{1000} < 0.5 < \frac{62}{100} < 0.63 < 630\%$$

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C. Challenging problemsThe suggested time allocated for **Question 8 to 10 is 12 minutes.**

Solve the problem and show your working clearly.

8. $75.75 \div 2.5$

$$\begin{aligned}
 &= 75.75 \times 10 \div 2.5 \times 10 \\
 &= 757.5 \div 25 \\
 &= 30.3
 \end{aligned}$$

Calculation

$$\begin{array}{r}
 30.3 \\
 25 \overline{) 757.5} \\
 \underline{75} \\
 75 \\
 \underline{75} \\
 0
 \end{array}$$

9. Mary has a piece of timber that is 3.6 meters long and she divides it into 0.25m pieces. How many pieces will she have? How many meters of timber does she have left over?

$$\begin{aligned}
 &3.6 \text{ m} \div 0.25 \text{ m} \\
 &= 360 \div 25 \\
 &= 14 \text{ R } 0.1
 \end{aligned}$$

She will have 14 pieces of timber
and 0.1 m of timber is left over.

$$\begin{array}{r}
 14 \\
 25 \overline{) 360} \\
 \underline{25} \\
 110 \\
 \underline{100} \\
 10
 \end{array}$$

10. Enoch earned \$360,000 last year. He use 15% of the amount to pay his children's school fee and $\frac{1}{3}$ of the remainder was needed to pay his home loan. How much did Enoch have left?

$$\begin{aligned}
 &\text{Enoch used for children's school fee:} \\
 &360000 \times 15\% = 54000 \\
 &\text{Money remain after pay school fee:} \\
 &360000 - 54000 = 306000 \\
 &\text{Money used for home loan:} \\
 &306000 \times \frac{1}{3} = 102000 \\
 &\text{Money left for Enoch} \\
 &306000 - 102000 \\
 &= \$204000
 \end{aligned}$$

Method 2:

$$\begin{aligned}
 &360000 \times (1 - 15\%) \times (1 - \frac{1}{3}) \\
 &= 360000 \times 85\% \times \frac{2}{3} \\
 &= \cancel{360000} \times \frac{85}{100} \times \frac{2}{3} \\
 &= 204000 \\
 &\text{Enoch has } \$204000 \text{ left.}
 \end{aligned}$$

D. Unfamiliar problems

The suggested time allocated for Question 11 is 8 minutes.

11. A family of four total 100 years in age. The parent's ages combine to be 0.8 of this total. The wife is only 60% of the husband's age. The children are 0.2 of the total with the oldest child being $\frac{7}{10}$ of this. How old are the four people in this family? (Show your workings and reasoning clearly and logically.)

Father $\times \frac{0.8 \times 100}{4}$

Mother $0.6 \times \frac{0.8 \times 100}{4}$

Oldest child $\frac{7}{10} \times \frac{0.2 \times 100}{5}$

Younger $\frac{3}{10} \times \frac{0.2 \times 100}{5}$

older child's age
 $100 \times 0.2 \times \frac{7}{10}$
 $= 14$

Younger child's age
 $100 \times 0.2 \times \frac{3}{10}$
 $= 6$

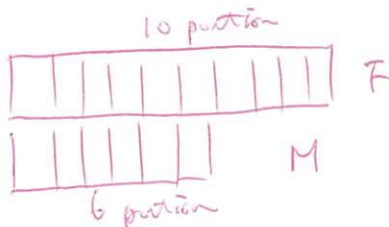
Husband: 50 years old,

Wife: 30 years old

Older child: 14 years old

Younger Child: 6 years old

Father + mother
 $= 0.8 \times 100 = 80$



16 portion = 80
 each portion = 5

∴ Father is
 5×10
 $= 50$

Mother is
 5×6
 $= 30$

~ The End ~